DEVELOPMENT OF ATTRIBUTION OF RESPONSIBILITY IN NORMAL CHILDREN AND CHILDREN WITH PRIMARY LEARNING INHIBITIONS

By
ALEX KRONSTADT

A DISSERTATION PRESENTED TO THE GRADUATE COUNCIL OF
THE UNIVERSITY OF FLORIDA
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA
December, 1967

ACKNOWLEDGEMENTS

I would like to express my appreciation for the guidance and advice provided by members of my supervisory committee: Dr. Audrey Schumacher, Chairman; Dr. Richard Anderson, Dr. Benjamin Barger, Dr. Vernon Van DeMiet, and Dr. Joseph Vandiver.

I would also like to express my gratitude to Thomas Hutchinson of Harvard University for his aid as statistical consultant.

Special appreciation is directed to my wife Diana, whose presence and support were so vital to the successful completion of this research.

Finally, I would like to thank Mrs. Irma Smith for her efforts in typing and editing the manuscript.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	ii
LIST OF TABLES	iv
LIST OF FIGURES	v
Chapter	
I. INTRODUCTION	1
II. METHOD	18
III. RESULTS	28
IV. DISCUSSION	47
V. CONCLUSIONS	56
REFERENCES	60
APPENDICES	63
APPENDIX A	64
APPENDIX B	65
APPENDIX C	69
APPENDIX D	70
BIOGRAPHICAL SKETCH	72

LIST OF TABLES

Table		Page
1.	MEAN IQ AND GRADE EQUIVALENT ACHIEVEMENT SCORES FOR SAMPLE AND AGE GROUPS.	19
2.	DISCREPANCY SCORES BETWEEN EXPECTED GRADE LEVEL AND ACHIEVED GRADE EQUIVALENTS	22
3.	MEAN VALUES OF ATTRIBUTED RESPONSIBILITY AT EACH LEVEL FOR THE SAMPLE GROUPS.	29
4.	MEAN VALUES OF ATTRIBUTED RESPONSIBILITY FOR TEN AGE GROUPS AT EACH LEVEL.	30
5.	MEAN VALUES OF ATTRIBUTED RESPONSIBILITY BY LEVELS FOR THE NORMAL AND PLI GROUPS AT THE FOUR AGE LEVELS	31
6.	ANALYSIS OF VARIANCE FOR THE EFFECTS OF GROUPS, AGE, AND LEVELS ON ATTRIBUTED RESPONSIBILITY (λ = 80)	32
7.	MEAN VALUES OF ATTRIBUTED RESPONSIBILITY FOR PLI, NORMAL, AND TOTAL GROUPS AT POSITIVE-NEGATIVE AND HIGH-LOW INTENSITY OUTCOMES.	43
8.	SUMMARY OF CHI SQUARE ANALYSIS FOR THE FREQUENCY OF NO RESPONSES IN THE TWO SAMPLE GROUPS	46
9.	SUMMARY OF CHI SQUARE ANALYSIS FOR THE FREQUENCY OF EXTREME RESPONSES IN THE TWO SAMPLE GROUPS. .	46

LIST OF FIGURES

Figure		Page
1.	Mean values of attributed responsibility for the combined age groups at each Level.	33
2.	Mean values of attributed responsibility at each Level for the sample groups.	35
3.	Mean values of attributed responsibility at the individual Levels.	37
4.	Mean values of attributed responsibility by Levels for the normal and FLI groups at the six year age level.	39
5.	Mean values of attributed responsibility by Levels for the normal and FLI groups at the eight year age level	40
6.	Mean values of attributed responsibility by Levels for the normal and FLI groups at the ten year age level.	41
7.	Mean values of attributed responsibility by Levels for the normal and FLI groups at the twelve year age level	42
8.	Mean values of attributed responsibility for the two sample groups at positive and negative outcomes	44

CHAPTER I

INTRODUCTION

A number of studies have provided empirical data which suggest that persons tend to organize their perceptions of physical and interpersonal events in terms of the causal factors underlying the occurrence (Heider and Simmel, 1944; Heider, 1958; and Michotte, 1963). The position has been further advanced (Wright, 1960) that, while certain distinctions may exist, highly similar processes underlie the causal interpretations of physical and social phenomena. Michotte (1963) found that adults often describe discrete, physical events in terms of intention, motive, and other interpersonal factors, and Piaget (1932, 1955) has reported on similar observations with children. In view of this basic, organizing tendency, the extent to which one individual perceives another as causal of or responsible for events in his environment may constitute an important determinant of their interaction. If one attributes responsibility for an event, implicitly he blames if the outcome of the event is negative, and he praises or gives credit if the outcome is positive (Shaw and Sulzer, 1964). The individual and situational factors operative in the development and maintenance of this process thereby come to have a fundamental research significance.

The purpose of this research was to investigate patterns of attributing responsibility in school age children, as a function of chronological age and emotional adjustment. The theoretical framework employed derived primarily from the work of Fritz Heider (1958a), who delineated five developmental levels in the attribution of personal

responsibility. A major design of this study was to [illegible] the results of previous investigations [illegible] adults—which have provided strong support for Heider's formulation (Sulzer, 1964, Shaw and Sulzer, 1964; and Aronstadt, 1965)—by applying these techniques to children in order to test the assumption that Heider's Levels represent successive levels of maturation. A second, major focus related to the question of whether the existence of emotional disturbance was associated with discernible patterns of divergence from "normal" modes of attributing responsibility. In that connection, a comparison of manifestly normal children and children with learning problems of psychogenic origin was undertaken.

Definitions of Attribution of Responsibility

Earlier studies utilizing attribution of responsibility have varied somewhat as to precise definitions. Following Heider (1958a), Sulzer has argued (1964) that the identification of personal responsibility requires specific inferences that do not occur in perceptions of physical causality. He noted that, in the process of identifying an individual as a first cause of an event, intentions are of prime importance ". . . because they provide the basis for the psychologic cognition that the event has originated in him (p. 6, 1964)." This conceptualization denotes the importance of perceived causality of local origin, and it suggests that perceived intentionality is a critical determinant to making the inference of personal responsibility (the first cause). Fontana (1958) has underlined the importance of causality by limiting his definition of attribution of responsibility

to the process of designating a cause of action. Wright (1960, 1964) has added to this conception the willingness of an observer to deem the causal agent to implicit sanctions. Studies by Sulzer (1964) and Kronstadt (1965) appear to bear out both factors, with some minor qualification. Kronstadt (1965) has suggested that a person may be held responsible in the absence of actual causality, if he is perceived as having sufficient foresight that the event was probable. It was found that certain individuals will attribute a significant amount of responsibility to a person who fails to prevent a highly probable negative outcome. Overall, however, the available literature supports the determinant function of both variables, and, accordingly, the following definition was assumed for the purposes of this research: Attribution of responsibility consists of two primary factors: (1) the perception of a causal source of action, and (2) the designation of, or willingness to deem the source to invilicit sanction, i.e., praise or blame. Thus, the attribution of responsibility in an interpersonal situation may be regarded as an operational definition of an observer's perception of personal causality in the situation (Kronstadt, 1965 and Wright, 1963).

Theoretical Framework: Attribution of Responsibility

Heider (1958) has proposed a tri-dimensional theory of social causality consisting of Responsibility, Intentionality, and Justifiability. The dimension of Responsibility involves the process of designating the causal agent of an interpersonal event. Intentionality

is concerned with the positive or negative impact of an actor's motivation, and the Justification dimension relates to the extent to which an act is in accord with logical or social norms.

In his naive analysis of action, Heider (1958a) has undertaken a more extensive analysis of personal responsibility and its attribution. In maintaining that responsibility may be attributed to personal and/or environmental or chance, his formulation is anchored by the proposition that:

> Personal responsibility does vary with the relative contribution of environmental factors to the active outcome. In general, the more they are felt to influence the action, the less the person is held responsible (1958a, p. 113).

However, this statement might more appropriately read ". . . varies with the ability of the attributor to take such factors into consideration." The dimension thereby becomes one of the abstractness of the concept being used, and it allows the inference that it is legitimate to speak of relative degrees of responsibility in an event. Furthermore, it implicitly bears upon the personal characteristics of an observer and their influence on the process of attribution.

Heider then delineates five Levels in the attribution of responsibility (1958a), which may be regarded as ". . . successive stages in which attribution to the person (initially increases to a point, then) decreases and attribution to the environment increases (p. 113)." These Levels have been explicated by Shaw and Sulzer (1964) and restated in the following terms.

Level I: Global Association.—The person is held responsible for any effect that he is [illegible] in any way. In Piaget's terms (1955), [illegible] at this most primitive stage is de[illegible]pre-logic, pseudo-causal reasoning rath[illegible]ison of objective causal connections. Thus, a person may be blamed for harmful acts committed by his friends.

Level II: Extended Commission.—The person is held responsible for [illegible] effect that he produced by his actions, even though he definitely could not have foreseen the consequences of his action. As in Piaget's "objective responsibility" (1932), the person is judged according to what he does but not according to motives.

Level III: Careless Commission.—The person is held responsible for an[illegible] foreseeable effect that he produced by his actions, though the effect was not part of his goals or intentions. He is held responsible for the lack of restraint that a wider cognitive field would have produced.

Level IV: Purposive Commission.—The person is held responsible for any effect that he produced by his actions, foreseeing the outcome and intending to produce the effect. This Level corresponds roughly to Piaget's "subjective responsibility" (1932), in which motives are the central issue.

Level V: Justified Commission.—The person is held only in part responsible for any effect that he intentionally produced if the circumstances were such that most persons would have felt and acted as he did. Responsibility for the action is at least shared by the "coercive" environment.

As Shaw and Sulzer have suggested (1964), these Levels denote different forms of attribution, or different modes of accounting for the several variables in the total situation. The Levels theoretically represent a progression from very primitive, undifferentiated attribution to highly differentiated, sophisticated patterns of attributing responsibility. Consequently, a strong developmental, maturational implication underlies this formulation.

Research on Attribution of Responsibility (AR)

The major portion of research efforts devoted explicitly to attribution of responsibility (AR) has been directed toward the development of methodological instruments and the testing of existing theoretical formulations, and the studies have primarily drawn upon adult populations. Two experimental techniques have been devised specifically for the purpose of studying AR patterns. The Social Interaction Series consists of a set of 36 drawings, which depict man-woman, boy-woman, boy-man, and man-man interactions in successive stages of positive and negative outcome events, and which provide a measure of both direction and degree of AR (Wright, 1960). Shaw and Sulzer (1964) and Sulzer (1964) have developed a set of brief stories designed to represent Heider's five Levels in the attribution of responsibility. Forms for adults and children have been constructed, and several investigations have attested to the effectiveness of the methodology for assessment of AR patterns within the Heiderian framework (Sulzer, 1964; Shaw and Sulzer, 1964; and Kronstadt, 1965). The instrument itself portrays a series of interpersonal encounters involving some central character, who is identified as person "P" or "Perry," respectively, in the adult and child forms. The general format of this methodology has been assumed for the purposes of this study, and a more detailed description appears in the following chapter (Method, Chapter II).

A series of studies with adults relating attribution patterns to personality characteristics have been reported by Wright (1960, 1963, 1964). Field dependence and self-concept were found to influence the

direction and degree of AR, while psychological adjustment was related to the willingness to attribute responsibility. Field dependent persons tended to attribute more to others than to self, while low self-concept was associated with reduction in the degree of responsibility attributed. Maladjusted persons showed the greatest amount of unwillingness to attribute, as measured by the number of times no responsibility was declared. The effects of criticism were an influence on both the degree and the willingness to attribute responsibility to others. Subjects attributed more readily and twice the amount of responsibility when criticized than when praised. Wright has further demonstrated (1963) the effect of status (age differential) on AR, reporting that a significantly greater degree is attributed to authorities than to peers. This result corresponds to the earlier finding by Thibaut and Riecken (1955) that the locus of causality for identical acts is perceived as external to low status persons and internal for high status persons.

That the perception of social causality may occur in a sequential context is suggested in a study by Fenitore and Sherburne (1957). They found that a mediator of action may be perceived as having adopted the intentions of an originator and may thereby be attributed responsibility for an effect. Jones and deCharms (1958) have reported that persons who are judged as having acted on the basis of existing social norms are held less responsible for negative actions than those performing the identical act outside the bounds of an established norm (the act was collaboration with the enemy).

An extensive, empirical test of Heider's Levels in the attribution of responsibility (1958a) has been conducted with adults by

Sulzer (1964). Utilizing the Stories in Responsibility Attribution (Kronstadt, 1965; Sulzer, 1964; and Shaw and Sulzer, 1964), he found that the amount of AR progressively increased to a maximum at Level IV, where intentionality is clearly indicated, thereafter decreasing slightly at Level V, where environmental influences operate to facilitate (justify) an interpersonal event. Significant effects attributable to outcome variables were also found, such that greater mean amounts of responsibility were obtained for negative than for positive outcomes, and the degree of AR was directly related to outcome intensities (hi-lo). Kronstadt (1965) replicated these general findings and extended methodological considerations by demonstrating the significance of variations within Levels. His findings suggested that for adults, attributing on the basis of more "sophisticated cognitive modes," the Levels formulation is inadequate, and that the recognition of five discrete variables, each theoretically determinant, in variable quantities, in each causal event, is more appropriately descriptive.

The lone study within this general framework that has focused on children's patterns of attributing responsibility was reported by Shaw and Sulzer (1964). These investigators administered both child and adult forms of the Stories in Responsibility Attribution to groups of second graders and college sophomores. Among their results was the finding that, overall, children attributed more than adults at the Global Association (I) and Extended Commission (II) Levels, and less than adults at the Careless (III), Purposive (IV), and Justified (V) Commission Levels. These data were held as general support for the

conflicts upon school materials, with resulting inhibitions to the acquisition of academic skills (Grunebaum, et al., 1962). Alternative hypotheses on the symptom-specific and psychogenic origins of learning inhibitions have been expounded (Kessler, 1966; Berlin and Szurek, 1965; and Anderson, 1965) and remain open to empirical test.

Among the essential criteria for a diagnosis of primary learning inhibition are normal intellectual ability, learning problems as the central complaint, absence of manifest organic and physical pathology, absence of gross social and family pathology, and academic underachievement (Grunebaum, et al., 1962). The precise discrepancy of achievement to ability has remained somewhat variable across research in this area (Kessler, 1966). Studies have differentiated two types of learning problems within the primary learning inhibition (Anderson, 1965). "Acquisition" difficulties denote problems in which a child exhibits his inhibition through a breakdown of capacity to acquire learning skills. "Production" difficulties demonstrate an inability to express learned materials, which were apparently acquired without any serious problem. However, in summarizing the research of the Judge Baker group, Anderson (1965) has noted that combinations involving both types of difficulties are more frequently found with the primary learning inhibition.

The current literature indicates that certain differentiating characteristics are apparent for the primary learning inhibition. There is general agreement that the syndrome is more common in boys than girls (Kessler, 1966 and Shaw, 1961) by a ratio of roughly five-to-one (Alper, Gardner and Sperry, 1964), and that it occurs from the very outset of

the education experience (Grunebaum, et al., 1962). Shaw and McCuen (1960) have found that boys also tend to manifest learning problems earlier than girls, usually in the elementary years as opposed to the junior high years of school. Children with learning inhibitions are found to differ from normal children with regard to self-concept and self-evaluations. These children generally were found to be more negative in self-attitudes in comparison with children manifesting no learning problems (Shaw, 1961). Anderson's research summation (1965) adds to this the existence of a particular sensitivity in these children to feelings of worthlessness with respect to being wrong, which appears as an indiscriminant tendency toward self-criticism. Other distinguishing features found in the learning inhibited child involve acute difficulties in discriminations of "right" and "wrong" (Sperry, 1962), contamination of mastery activities (learning) with aggression fantasies (Sperry, Staver and Mann, 1952), and a blocking of basic perceptual processes, so as to inhibit (deny) the awareness and intake of environmental materials (Sperry, Staver, Reiner and Ulrich, 1958).

Only one study appears in the current literature on patterns of causal thinking in children with primary learning inhibitions (Korstvedt, Tessman, Prentice and Kuhlman, 1964). In it the authors have reported consistent differences between their learning problem and normal subjects, such that the former appeared developmentally more primitive in their thought processes relating to both physical and interpersonal causality. The children with learning inhibitions tended to draw causal connections among events which were actually chance occurrences, while normals were found to have attained a higher

level of "objectification" in their causal conceptions. An unexpected result was the absence of any difference in the response of learning problem children under conditions of physical versus interpersonal causality. The writers' expectation that interpersonal content would exert an inhibiting effect on the cognitive processes of their learning problem children was not confirmed. However, the overall indication remained that, for children with learning inhibitions, the objectification of cause-effect relations in both spheres had not proceeded at the same rate as that for the group of normal children (Kerstvedt, et al., 1964).

The Problem

The primary concern of this study was in children's patterns of attributing personal responsibility for simulated social events as a function of their chronological age, emotional adjustment (normal and learning inhibition), and the "structure" of the event. For the purposes herein, the attribution of responsibility has been defined in terms of the perception of personal causality and the willingness of an observer to open an agent to implicit sanction.

It has been noted in previous sections that a basic premise underlying Heider's formulation regarding the attribution of personal responsibility involves a developmental-maturational schema. His conception (1958a) makes explicit reference to "successive stages" in the attribution of responsibility, the Levels of which indicate a progression toward increasing differentiation of the concept being applied. The overlap of this analysis with the work of Piaget (1932,

1955) is apparent, and essentially introduces an interpersonal terminology that corresponds closely to Piaget's understanding of the development of causal reasoning in the child. Whereas Heider's major emphasis is on the actual structure (perceived structure) of the interpersonal environment, as this determines the attribution of responsibility, Piaget has focused upon the child's capacity to take that structure into consideration, in a cognitive sense, and he also views the process within a maturational sequence (Piaget, 1932). From these analyses, one may thus derive the position that, given the constancy of relevant conditions, a child's ability to respond differentially to the variable elements in an interpersonal environment will increase with age. As regards the Heiderian formulation on attribution of responsibility, this would be reflected in a direct relationship between the age of a child and his capacity for differential responsiveness to the five Levels in attributing responsibility. Indirect support for this position may be inferred from the work of Shaw and Sulzer (1964), in which second graders differed from college sophomores by attributing more at the most primitive Levels (I and II) and by displaying less differentiation across Levels. A specific test of the relationship implied in that study thus constituted the initial purpose of this research. Although no firm basis existed for designating any particular age Level relationships, it was anticipated that the age range of seven to nine years would comprise a transition period—drawing from the work on physical causality by Laurendeau and Pinard (1962)—with developmentally more primitive responses expected for children of lower age and more differentiated attributions for the higher ages.

The second, major focus of [illegible] was that of the comparison of attribution patterns for the two different subject populations, children with primary learning inhibitions and children of normal emotional and academic development. Some of the formulations that have been generated regarding children with primary learning inhibitions (PLI) have been held as providing a reasonable basis for the expectation that these children will differ from normals in attribution patterns. Difficulties with distinctions of right and wrong and a tendency for a restriction in the scope of environmental awareness, as they characterize the PLI child, would seem to constitute indirect influences on the capacity for discriminant reasoning with respect to personal causality and responsibility. More direct are the actual data indicating that children with primary learning inhibitions tend to "lag" developmentally, when compared with normals in objectification of cause-effect relations (Korstradt, et al., 1964). Such findings have provided the foundation for the prediction made in this research, that PLI children would differ significantly from normal children in their patterns of attributing responsibility. The most essential point of that expected difference involved the developmental sequence of attribution patterns, the proposition of "developmental lag"--in comparison with the maturational sequence in normal children--thereby being opened to test in relation to Heider's Levels formulation. Simplified, the expectation was that children with primary learning inhibitions would demonstrate a developmentally later transition period than normal children and thus reflect some anomaly in their attribution patterns. This conceptualization readily led to the expectation of a tendency in the PLI children to

attribute more overall responsibility at the more primitive Levels (I and II), to demonstrate less differentiation among the five Levels defined by Heider, and to show a persistence of these more primitive attribution patterns beyond that evident in the patterns of normal children.

The final concern in this study involved an effort to further validate the predictiveness of Heider's model of the attribution of personal responsibility (1958a). The results of adult studies have generally supported the conception of five, distinct "causal situations" that may exert a determining influence upon the attribution of responsibility for action in an interpersonal event. These studies have also pointed to the significant effects on AR patterns attributable to properties of the situation outcome. And the study by Shaw and Sulzer (1964), with children, has approximated this general model, although in a more limited sense. The model has accounted for the operations in the attribution of responsibility by adults as follows: Mean AR increases progressively from Level I to a maximum at Level IV, thereafter decreasing at Level V with justification for action; mean AR is greater for negative than positive outcomes, and it progressively increases with the intensity of the action outcome. The methodology of this study has provided for a general test of these relationships.

Experimental Hypotheses

I. Patterns of attribution of responsibility are expected to vary significantly as a function of an age by Levels interaction.

A. The effects of Levels on mean AR are hypothesized to change with age differences, so that the differential effects of Levels

are less distinct at lower than higher ages. As age increases, it is anticipated that the distributions of mean AR at the different Levels will increasingly approximate the predicted pattern of progressive increments of responsibility from Levels I to IV, with some decrease in responsibility at Level V.

B. A transition stage at eight years of age is expected, with greater and less differentiated distribution patterns--relative to Haider's model--in evidence above and below this age.

II. Patterns of attribution of responsibility are expected to vary significantly as a function of group (normal versus primary learning inhibition) by Levels differences.

A. Mean AR at individual Levels is hypothesized to differ with group differences such that the children with primary learning inhibition attribute more at the primitive Levels and less at the sophisticated Levels than normals, thereby displaying less discrimination across Levels. Generally, a developmentally more primitive pattern is anticipated for the children with primary learning inhibitions.

III. The mean value of attributed responsibility is expected to vary significantly as a function of the causal structure of an event. Generally, mean AR should increase progressively from Levels I to IV, thereafter decreasing somewhat at Level V.

IV. Attribution patterns are expected to vary significantly as a function of the interactive effects of ages, groups, and Levels. Differences in the patterns of responsiveness to Levels for the normal and PLI children are anticipated to vary with age, reflecting a "magnification" in the cognitive development of children with primary learning inhibitions.

A. The substance of this hypothesis is reflected by the expectation that PLI children will manifest a cognitive-developmental immaturity and thereby distinguish themselves from normals in showing a later transition stage between more primitive and differentiated patterns of attributing responsibility.

Secondary Expectations

1. The mean values of attributed responsibility are expected to vary with the quality (positive-negative) and intensity (high-low) of the action outcome. The previously determined, highly reliable finding of greater mean AR for negative than positive and high than low intensity outcomes should be replicated in the results of this study.

2. The [illegible] groups are expected to differ significantly in their willingness to attribute responsibility. A greater unwillingness may be anticipated for children with primary learning inhibitions as compared with normal children. This expectation is based on the implications of Wright's findings (1960) that unwillingness to attribute responsibility was associated with emotional maladjustment.

3. The experimental groups are expected to differ significantly in their tendency to use extremes in defining attributed responsibility for given situations. A greater tendency for extreme responses may be anticipated for children with primary learning inhibitions as compared with normal children. This expectation is also based on the research of Wright (1960), who found that emotionally disturbed adults were more inclined to respond to either end point on a scale than to intermediate values on the scale.

CHAPTER I

METHOD

The general methodology of this research was to present a test situation to all subjects consisting of brief stories which depicted interpersonal events of varied content. These stories had been constructed to represent Heider's five Levels in the attribution of personal responsibility (1958a) and were additionally controlled for the quality (positive-negative) and intensity of outcomes. Subjects were asked to judge whether and to what degree the central character was responsible for the event in each story.

Subjects

The subjects for this experiment comprised two sample groups: normal, achieving grammar school boys and male children with primary learning inhibitions. Each group contained a total of 40 children and was constituted of four sub-groupings, by age, of 10 subjects each. The age levels of six, eight, ten and twelve years were thus equally distributed in both sample groups, and these subjects were selected within a range of four months above-and-below each specific age. The mean age level for all groups appears in Table 1. Children for the normal group were selected from several public schools in the greater Boston area, while subjects for the PLI group were drawn from three specialized schools for emotionally disturbed and organically impaired children suffering with major learning difficulties and from a special education class of a nearby public school system.

TABLE 1

MEAN IQ AND GRADE EQUIVALENT ACHIEVEMENT SCORES FOR SAMPLE AND AGE GROUPS

Age	Normals	Learning Inhibition
6	$\bar{X}$ age 6.5 years $\bar{X}$ IQ 106.5 $\bar{X}$ GE 2.24	$\bar{X}$ age 6.6 years $\bar{X}$ IQ 103.1 $\bar{X}$ GE 1.23
8	$\bar{X}$ age 7.0 $\bar{X}$ IQ 107.7 $\bar{X}$ GE 2.68	$\bar{X}$ age 8.2 $\bar{X}$ IQ 104.9 $\bar{X}$ GE 1.62
10	$\bar{X}$ age 9.9 $\bar{X}$ IQ 110.0 $\bar{X}$ GE 4.68	$\bar{X}$ age 10.3 $\bar{X}$ IQ 105.9 $\bar{X}$ GE 2.56
12	$\bar{X}$ age 12.2 $\bar{X}$ IQ 108.2 $\bar{X}$ GE 7.20	$\bar{X}$ age 12.0 $\bar{X}$ IQ 105.9 $\bar{X}$ GE 3.47

A number of criteria were utilized in selecting children for the experimental groups. The numerical results of those efforts are presented in Table 1, and a copy of the outline form used for accounting sampling data appears in Appendix A.

1. All subjects participating in the experiment proper were predetermined to fall within the average to high average intelligence range. IQ scores were derived from test results available in records on each prospective subject and consisted of results from three tests of general intelligence: the Wechsler Intelligence Scale for Children, the Revised Stanford-Binet (LM), and the seventh edition Kuhlmann-Anderson. Correlations among IQ scores for these instruments are

consistently reported in the range of .75-.85 (Technical Manual for the Kuhlmann-Anderson, 1963; Anastasi, 1961; Barbee, 1961; Bates, 1961; and Cronbach, 1960), and the substantial magnitude of these relationships was regarded as acceptable for establishing an intelligence range for the test groups. The average IQ for total subjects was thus 106.52, based on a mean IQ of 108.10 for normals and 104.90 for the PLI group. The range of individual scores was 17, from 100 through 116. For total groups and across age groupings there appeared an insignificant tendency for the average IQ of normals to slightly exceed that of the PLI children.

2. The second criterion measure was achievement test score, and it was primarily on the basis of these results that subjects became assigned to the two sample groups. Test results in grade equivalents appear in Table 1. The scores were based on results from the Revised Stanford and 1963 edition Metropolitan achievement tests, which are two tests of a highly similar structure and content, that have been found to correlate in the .85 range (Anastasi, 1961; Stake, 1961; Cronbach, 1960; and North, 1959). Evaluation of these data was conducted as follows. All subjects were of demonstrated, average intelligence and were therefore assumed to be capable of average school achievement (given the additional controls discussed below). Those subjects found demonstrating achievement skills at a "significantly" lower than expected level were adjudged as having a learning problem. For the purposes of this study, it was determined that a child must show a discrepancy between achievement (test score) and expected level of performance (commensurate

[illegible] at least one-third. Each subject thus received a D score based on this procedure (D = EGL - AGE, where EGL was the expected grade level, that is, the year in school plus the number of months into that year at the time of testing, and AGE was the achieved grade equivalent). The D scores for the two sample groups, by age, are presented in Table 2. Following this definition of identifying a learning problem child, a twelve year old in the sixth grade would be required to demonstrate achievement skills no higher than a fourth grade level prior to such identification. And, so on progressively, down to the six year olds at a first grade level, where achievement would need be a third of one year behind expected performance levels. For the normal achieving groups, efforts were successfully made to restrict D scores to within a few months of expected grade levels.

This general criterion procedure was established for all individual and group achievement results. It did not emanate from any specific theoretical basis, but rather from a need within this research area for a consistent and meaningful formulation for identification of learning inhibitions. Previous research, particularly the decade of research by the Judge Baker group, has applied a criterion of a one-year underachievement (using subjects in the eight-nine year old range), and Kessler (1966) has pointed to the common, though not entirely consistent use of this definition. The procedure employed in this study does offer an equal, if not more rigorous standard for ages eight and above, and it introduces a consistent methodology for identifying underachievement at different age levels which provides for inclusions down to the first grade level. The procedure is consistent with educational practices of

TABLE 2

DISCREPANCIES BETWEEN EXPECTED GRADE LEVEL AND [illegible] GRADE EQUIVALENTS

Age Level	Normals	Learning Inhibition
6	D = .36[a]	D = .67
8	D = .02	D = 1.28
10	D = .08	D = 2.04
12	D = .40[a]	D = 3.13

[a]Discrepancies in positive direction, above EGL.

regarding performance at a two-third achievement rate as below normal boundaries, and this principle, in combination with the presence of secondary symptoms, adequate intellectual ability for average achievement, and the absence of organic and other physical deficits, is herein advanced as a potential, methodological standard for the selection of children with learning inhibitions.

3. The possibility of specific neurological problems was assessed for all subjects. For the group of normal children, teachers reported no gross coordination nor perceptual-motor difficulties, and no such indications appeared in their school medical histories. None of the normal group were found to have even been tested for neurological dysfunctions. In contrast, 33 or 82 per cent of the LLI children had received psychological and neurological tests within the last two years. In no cases was there a strong suspicion nor conclusion of brain impairment.

Routinely administered hearing and vision tests were examined for all subjects, and all findings were negative. Six children did wear glasses, four normals and two FLI children, but there was no consistent evidence that vision was a factor in the learning ability of the sample. In addition, none of the children in the sample groups manifested any form of speech disturbance.

5. General information on emotional adjustment was evaluated for all subjects. There were consistently no indications of gross emotional difficulties in the normal group. In the FLI group, 27 children or some 67 per cent of the total were diagnosed, on the basis of psychological, psychiatric, and educational evaluations, as "primary neurotic learning inhibitors." For the remaining 13 children in the FLI group, based on this writer's perusal of teacher reports, counselor and school records, and medical histories, there were no indications of pre-delinquent, delinquent, psychopathic, nor psychotic disorders. The most frequent secondary symptoms encountered were enuresis and crying spells, both of which have been noted as fairly common in FLI children (Anderson, 1965).

6. Social class standings were compiled for all experimental subjects using the Hollingshead two factor index of social position (1957). Selected subjects were limited to the middle to upper middle ranges of the five class scale, corresponding to social class levels 2 and 3. The two factors determining position on the scale were father's education and occupation.

The general results of the foregoing selection procedure were as follows: Two sample groups were compiled, each of which consisted of

Stimulus Materials

The method o[illegible] form of toe Stereo [illegible] with some modifica[illegible] of 20 stories, 20[illegible] and Salmon, 1964, p. [illegible] incorporate on [illegible] responsibility [illegible] are co-based or [illegible] subjects, [illegible] Level [illegible], Pa[illegible] (Level 7), and [illegible]

Level and positive and two negative outcomes. High and low outcome intensities were also represented at each Level under both outcome qualities. All of the stories portrayed the activities of a central character, a boy named Perry. The original test materials, with alternate forms and relevant validity data, were reported by Shaw and Sulzer (1964), and the final, somewhat revised version utilized in this study appears in Appendix B.

Two basic alterations were introduced to the original stories in this research. The first of those consisted of a limited reinterpretation of Shaw and Sulzer's representation of Heider's Level i (Shaw and Sulzer, 1964). In their original construction of the stories, the authors had chosen to limit association to that occurring in a context of friendship or ownership, without the requirement of an actual physical presence in the action situation. For the purposes of this study, stories representing Level i were revised, so that Perry was present, though still not a source of action in producing the events. It was felt that this revision more closely approximates Heider's meaning of Level I, and that it does not alter the basic causal structure of the events. The second alteration involved the content used by Shaw and Sulzer to portray high intensity outcomes. The frequent use of death as a means of representing high intensity, negative outcome was viewed as inappropriate for this study, specifically due to the inclusion of a clinical population which was potentially hypersensitive to this theme. Therefore, while injury was retained as a form of this type of outcome, the actual occurrence of death was deleted from the materials.

Procedure

The subject [illegible] materials by th[illegible] chilarer each. [illegible] a boy, named Danny [illegible] decide whether and t[illegible] happened in the sto[illegible] following what [illegible] for administratio[illegible] eight groups over a [illegible] for subjects b[illegible] something, [illegible] This definition [illegible] calling the subject [illegible] and causality, [illegible] attributing to [illegible]

Subject [illegible] of effort and [illegible]

alternatives and a five point rating scale were provided for each one of the 20 stimulus items. The rating scale consisted of five boxes of increasing sizes arranged horizontally across the response sheets. The words "yes" and "no" were printed alongside each rating scale, and five such scales appeared on each page of a four page answer booklet. A sample of the final form of subject response sheets may be referred to in Appendix C. In the administration, the task of recording responses was carefully described and illustrated for subjects before the first presentation of test items. The children were instructed to listen closely to each reading and to decide first whether Terry was responsible for the event. It was demonstrated that they could record this judgment by circling either the "yes" or "no" next to the appropriately numbered rating scale. If "yes" was circled, it was noted that an X would need to be inserted into one of the boxes to indicate the degree of responsibility. This procedure was also demonstrated. The first reading was then preceded by a final statement of the definition of "responsible." The stories were then read aloud by the examiner, with each story read at least twice to insure understanding. The examiner's only response to questions, after the actual test had begun, was to reread the story in question.

[redacted] values at the five [redacted] by ages. Table 6 pre- [redacted] on these individual effects [redacted] hypotheses and secondary [redacted] and illustrations. The raw data for subjects [redacted]

Hypothesis I

Patterns of attribution or responsibility are expected to vary significantly as a function of an age by Levels interaction.

A. The effects of Levels on mean AR are hypothesized to change with age differences, so that the differential effects of Levels are less distinct at lower than higher ages. As age increases, it is anticipated that the distributions of mean AR at the different Levels will increasingly approximate the predicted pattern of progressive increments of responsibility from Levels I to IV, with some decrease in responsibility at Level V.

B. A transition stage at eight years of age is expected, with greater and less differentiated attribution patterns—relative to Heider's model—in evidence above and below this age.

The results of the analysis of variance in Table 6 indicate that a highly significant ($p < .01$) age by Levels interaction obtained in support of Hypothesis I. Reference to the mean AR values in Table 4 shows a consistent pattern of decreasing AR at the more primitive Levels (I, II), while mean AR increases with age at Level IV, where personal responsibility is explicit. The expected decrease in mean AR at Level V initially appears at age ten years. Figure 1 provides

MEAN VALUES O[illegible] EACH
LEV[illegible]

[illegible]DS	Lev[illegible]				
	I	II	III	IV	V
[illegible]	53	[illegible]	1.17	[illegible]	[illegible]
[illegible]	.00	[illegible]	[illegible]	[illegible]	[illegible]

MEAN [illegible]

Age	Levels				
	I	II	III	IV	V
6	1.65	2.61	2.54	3.16	3.27
8	.97	2.46	2.84	3.45	3.6-
10	.38	1.84	3.14	4.13	3.29
12	.15	1.66	3.06	4.47	2.94

TABLE 5

MEAN VALUES OF ATTRIBUTED RESPONSIBILITY BY LEVELS FOR THE NORMAL AND PLI GROUPS AT THE FOUR AGE LEVELS

Groups	Ages	Levels				
		I	II	III	IV	V
Normal	6	1.10	2.52	2.90	2.95	3.17
	8	.65	2.70	3.35	3.77	3.62
	10	.35	1.90	3.62	4.52	2.95
	12	.02	1.68	2.62	4.62	3.02
PLI	6	2.22	2.70	2.20	3.35	3.37
	8	1.33	2.10	2.38	3.12	3.60
	10	.40	1.80	2.65	3.65	3.42
	12	.28	1.65	3.30	4.30	2.45

TABLE 6

ANALYSIS OF VARIANCE FOR THE EFFECTS OF GROUPS, AGE, AND LEVELS ON ATTRIBUTED RESPONSIBILITY (N = 80)

Source	df	MS	F	p
Levels	4	426.60	120.84	.001
Age	3	5.58	1.58	
Groups	1	3.71	1.04	
Levels x Age	12	22.91	6.49	.01
Groups x Levels	4	18.15	5.14	.01
Age x Groups	3	6.73	1.91	
Levels x Age x Groups	12	4.95	1.41	
Anova Error	1560	3.53		

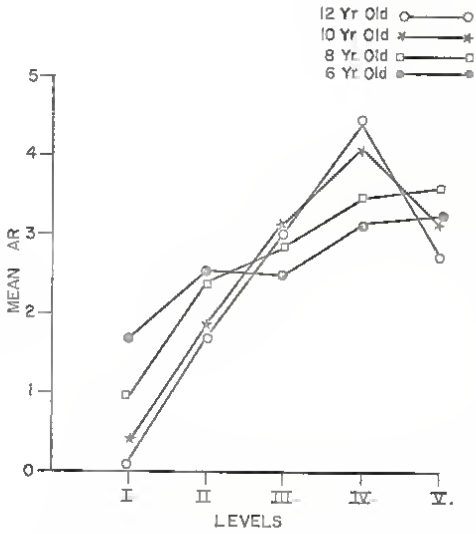


Fig. 1.—Mean values of attributed responsibility for the combined age groups at each Level.

[illegible] results of this study for Hypothesis I. The figure portrays the tendency for a rather flattened, undifferentiated curve across the five Levels at age six years, which shows progressive differentiation with age and evinces the predicted, discriminant pattern by the ten to twelve year levels. The shifts in AR pattern that are illustrated by a comparison of the curves for the eight and ten year old groups strongly support the expectation of a transition stage within this general age range relative to the development of differentiated patterns of attributing responsibility.

Hypothesis II

Patterns of attribution of responsibility are expected to vary significantly as a function of group (normal versus primary learning inhibition) by Levels difference.

A. Mean AR at individual Levels is hypothesized to differ with group differences such that children with primary learning inhibition attribute more at the primitive Levels and less at the sophisticated Levels than normals, thereby disclosing less discrimination across Levels. Generally, a developmentally more primitive pattern is anticipated for the children with primary learning inhibitions.

Support for Hypothesis II is indicated by a highly significant ($p < .01$) "Groups x Levels" interaction in Summary Table 6. The mean AR values in Table 3 show that subjects in the PLI group attributed twice the amount of responsibility at Level I and considerably less at Levels III and IV than subjects in the normal group. The somewhat higher mean AR for normals at Level IV was contrary to expectations. The illustration in Figure 2 portrays the relationship, by Levels, between the two sample groups. The PLI group demonstrates less differentiation across Levels than normals, although the PLI group does appear to be discriminating among the Levels in a fashion similar to that of the

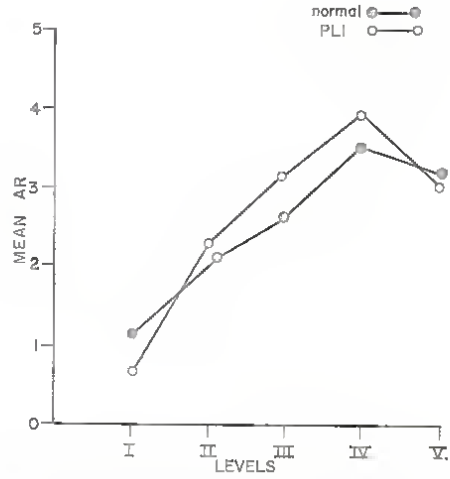


Fig. 2.—Mean values of attributed responsibility at each Level for the sample groups.

normal group. The major exception to this pattern occurs at Level 1, where the most primitive causal structure (Association) elicits significantly more attributed responsibility from the PLI children.

Hypothesis III

The mean value of attributed responsibility is expected to vary significantly as a function of the causal structure of an event. Generally, mean AR should increase progressively from Levels I to IV, thereafter decreasing somewhat at Level V.

The results of the analysis of variance in Table 6 indicate a highly significant F ratio ($p < .001$) for the main effects of Levels on attributed responsibility. This result provides strong support for Hypothesis III. The illustration in Figure 3 shows a pattern of progressively increasing mean AR up to Level IV, with the predicted decline in attributed responsibility at Level V.

Hypothesis IV

Attribution patterns are expected to vary significantly as a function of the interactive effects of Ages, Groups, and Levels. Differences in the patterns of responsiveness to Levels for the normal and PLI children are anticipated to vary with age, reflecting a "fixation" in the cognitive development of children with primary learning inhibitions.

A. The substance of this hypothesis is reflected by the expectation that PLI children will manifest a cognitive-developmental immaturity and thereby distinguish themselves from normals in showing a later transition stage between more primitive and differentiated patterns of attributing responsibility.

The results of summary Table 6 fail to lend support to Hypothesis IV, in that a significant "Levels x Groups x Ages" interaction did not obtain in the analysis of variance. The distributions of mean values presented in Table 5 indicate that the sample groups differ remarkably with an apparently strong trend toward a "lag" for the PLI group at the

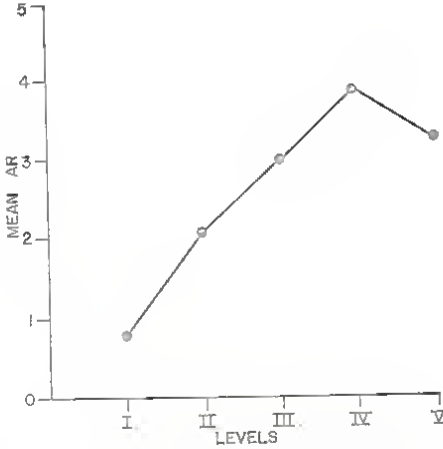


FIG. 3.—Mean values of attributed responsibility at the individual levels.

six and eight year ages. While the pattern for eight year old normals begins to shift toward the predicted, more differentiated mode of attribution, this pattern is not apparent for the PLI group. However, in many respects the patterns demonstrated by both groups at ten years is highly similar, and this suggests that the PLI children have "caught up" with the normals. Two important exceptions do appear. The PLI group continues to attribute considerably less at the more sophisticated Levels (III, IV) through age ten years and do not actually correspond in both pattern and degree with normals until twelve years of age. Also, children in the PLI groups do not appear to differentiate justification for activity (Level V) initially until age ten years, and this discrimination does not stabilize until age twelve. In this regard, the PLI children appear to lag developmentally behind the normal children by roughly two years. Because these results are considered meaningful, though not statistically significant by analysis of variance, Figures 4, 5, 6, and 7 have been included on the following pages to illustrate the trends and patterns described above. Discussion of the implications of these results is reserved for Chapter IV.

Secondary Expectations

2. The mean values of attributed responsibility are expected to vary with the quality (positive-negative) and intensity (hi-lo) of the action outcome. The previously determined, highly reliable finding of greater mean AR for negative than positive and high than low intensity outcomes should be replicated in the results of this study.

The distribution of means in Table 7 indicates that more responsibility was attributed for negative than positive outcomes. The illustration in Figure 8 suggests that, while this result is generally

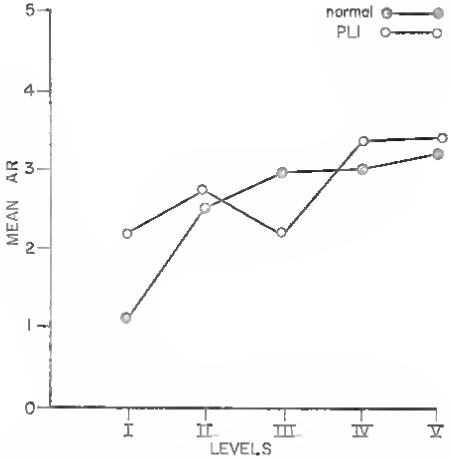


Fig. 4.—Mean values of attributed responsibility by Levels for the normal and PLI groups at the six year age level.

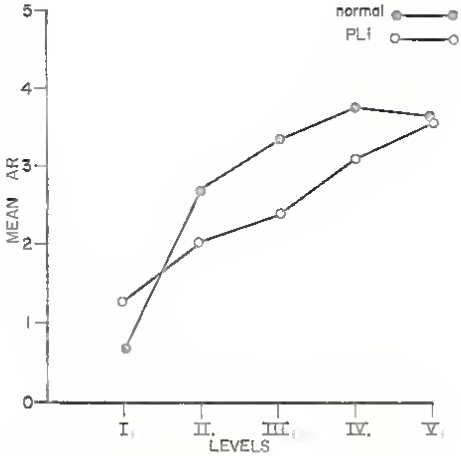


FIG. 5.—Mean values of attributed responsibility by Levels for the normal and PLI groups at the eight year age level.

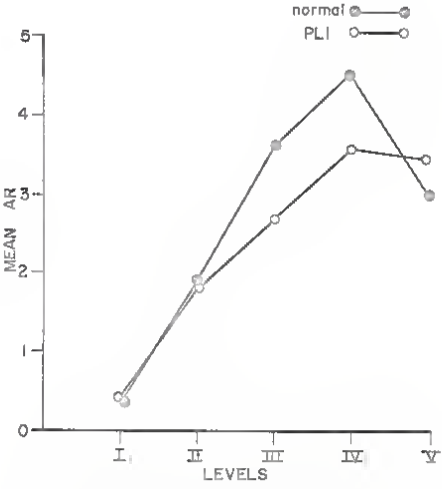


Fig. 6.—Mean values of attributed responsibility by Levels for the normal and PLI records at the ten year age level.

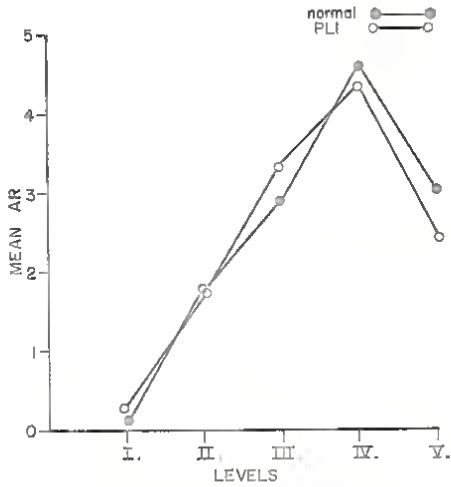


Fig. 7.—Mean values of attributed responsibility by Levels for the normal and PLI groups at the twelve year age level.

TABLE 7

MEAN VALUES OF ATTRIBUTED RESPONSIBILITY FOR PLI, NORMAL, AND TOTAL GROUPS AT POSITIVE-NEGATIVE AND HIGH-LOW INTENSITY OUTCOMES

	PLI	Normal	Total
Positive	2.24	2.56	2.40
Negative	2.80	2.67	2.74
Low	2.35	2.40	2.37
High	2.71	2.77	2.74

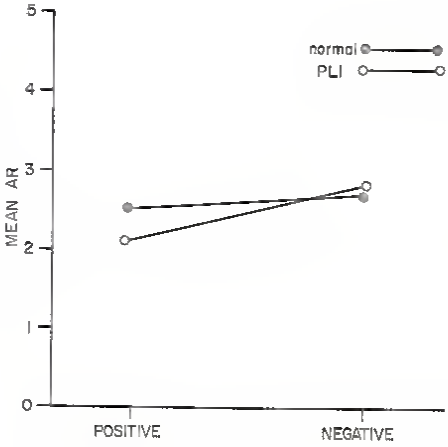


FIG. 8.—Mean values of attributed responsibility for the two sample groups at positive and negative outcomes.

consistent for both groups, the PLI children appear to attribute less for positive and more for negative outcomes than do normals. The reliability of this potential interaction was not subjected to statistical test. The results in Table 7 also indicate that more responsibility was attributed for high than low intensity outcomes, and the finding occurs as virtually identical for the normal and PLI groups.

2. The experimental groups are expected to differ significantly in their willingness to attribute responsibility. A greater unwillingness may be anticipated for children with primary learning inhibitions as compared with normal children.

The results for an analysis of this expectation consisted of the number of times no responsibility was attributed in the two groups, regardless of all other conditions. This approach is consistent with the technique established by Wright (1964). A simple tabulation of these frequencies revealed that "No" responses (scale score = 0) occurred 295 times (37%) in the PLI group and 264 times (33%) in the normal group. Table 8 presents the summary of a Chi Square analysis of these results, and it indicates that the required .05 level of statistical significance did not obtain in support of this expectation. Reference to Table 8 indicates that the result reaches .08 level of probability.

3. The experimental groups are expected to differ significantly in their tendency to use extremes in defining attributed responsibility for given situations. A greater tendency for extreme responses may be anticipated for children with primary learning inhibitions as compared with normal children.

The results for analysis of this expectation again derived from a frequency tabulation in the two sample groups. In this case, attention was directed to the extreme points on the experimental rating scale

TABLE 8

SUMMARY OF CHI SQUARE ANALYSIS FOR THE FREQUENCY OF NO RESPONSES IN THE TWO SAMPLE GROUPS

Chi Square = 2.87	df = 1	.05<p<.10

TABLE 9

SUMMARY OF CHI SQUARE ANALYSIS FOR THE FREQUENCY OF EXTREME RESPONSES IN THE TWO SAMPLE GROUPS

Chi Square = 9.43	df = 1	p<.01

(scale score = 0 and scale score = 5). The results were 590 (74%) for the FLI group and 531 (66%) for the normal group. The Chi Square summary presented in Table 9 provides strong support (p<.01) for this expectation, and indicates that children in the FLI group did use the end points on the scale with a significantly greater frequency than did the normal children.

CHAPTER IV

DISCUSSION

The primary aim of this research was a test of the developmental implications of the theory of attribution of responsibility advanced by Heider (1958, 1958a). A comparison of normals and children with primary learning inhibitions was included in an effort to ascertain whether developmental repercussions are associated with emotional problems, relative to this particular area of cognitive functioning. The final goal was to test the general utility of Heider's theory—with children—in accounting for predictable, variable patterns in the attribution of personal responsibility.

The results summarized in the preceding chapter generally correspond with the expectations outlined in Chapter I. The pattern of response to Heider's five Levels was shown to change systematically with increasing age. At the earliest age observed in this study (6 years), the obtained pattern (note Figure 1) indicates that less differentiation among Levels occurs. Of particular relevance is the significantly greater amount of responsibility attributed at Level I, the most primitive causal structure, wherein the central character is merely present in the context of the event, but not a source of action, nor a motivational influence in producing the outcome. The persistence of greater attributed responsibility at this Level by the six year olds suggests that the syncretistic, pseudo-causal reasoning described by Piaget (1955) continues to heavily influence the child's thinking about

social causality through this age. The obtained pattern denotes with equal clarity the tendency for AR to decrease at Level I as age increases. Results displayed an identical pattern, in relation to ages, occurring at Level II. More generally, the trend appearing with age is one of a progressively differentiated attribution pattern. If the responses of the six and eight year old groups are combined, and those of the ten and twelve year olds are likewise conceptually summed, it is apparent that the younger group shows a pattern which suggests they have made less discrimination among the causal structures than the older group. This pattern is illustrated in the appearance of greater AR at Levels I and II for ages eight years and below and more AR at Level III and particularly Level IV for ages ten and above. Finally, and quite importantly, the children below ten years of age do not discriminate at all between an intended, unmitigated action (Level IV) and an intended act that is justified by some facilitation or coercion in the environment (Level V). This final discrimination at the most sophisticated attribution Level initially appears at age ten, a result which suggests that the developmental culmination in relation to Heider's theory does not take place at least until this age. The conceptual grouping of the six-eight and the ten-twelve axes also provides an appropriate vantage for an assessment of the marked alteration in AR patterns between these groups. The results tend to provide rather strong support for the assumption of a transition stage occurring at around age eight years, the effects of which become directly observable by age ten. However, while this artificial grouping for illustrative purposes is valuable, it should not diminish the significance of the

observable variability at each of the four individual ages. The consistent pattern remains of decreasing AR at Levels I and II, and increasing AR at Levels III and IV with increasing age. There occurs at ages six and eight years an pattern of diminution in AR at Level V, relative to the AR at Level IV, but this highest, discriminant pattern does appear by age ten years and shows some fine modification at age twelve. Overall, the implications of these findings are that the theory proposed by Heider (1958, 1958a) does have a developmental, predictive significance, and that a mode of attributing responsibility based primarily upon personal causality and intention to produce a specific outcome, within which variable factors and conditions in the person and his environment can be considered, does not appear as a stabilized response pattern until ten years of age. The tendency to evaluate social causality and to attribute responsibility on the basis of motivations to particular actions does seem to be getting under way for eight year old children, so that the appropriate, discriminant pattern is established within two years of this age. However, below eight years, the pattern of AR is less discriminating of different causal structures, and is suggestive that attributions at these lower ages are not based in objective causal reasoning.

The results cited in Chapter III demonstrate that the two subject groups, across ages, are reliably different in their patterns of attribution to the five causal structures represented in Heider's Levels. Children with learning problems were found to attribute greater responsibility to a character merely present within the context of an action, and this pattern has been noted as one characteristic of

younger, and developmentally more primitive children. Likewise patterned upon the less differentiated mode of attribution was the tendency in this group to assign less responsibility for intended outcome and foreseeable, though unintended actions. The effect of these response patterns was an attribution mode that differs significantly from that demonstrated by the sample of normal children. The children with learning problems, as a group, thus tended to be less differentiated than their normal counterparts in patterns of attributing responsibility. The bases for this apparent, developmental "lag" are beyond the scope and purpose of this study, and therefore remain speculative. Certainly, however, the potential relevance of emotional disturbance and its probable, concomitant narcosto-cognitive distortions, experiential deprivations, and even neuro-psychologic immaturities must be considered in any interpretation of these findings. And the reality of an empirical difference between these groups does point to the need for more precise etiological investigations.

The analysis of variance for the main results of this study (note Table 6) indicated that there was no significant interaction for ages, groups, and Levels. It was the writer's expectation that an interaction of these effects would obtain in illustration of a developmental lag by the PLI children behind the normals. To some extent, the expectation was supported by the significant groups by Levels effect. However, the emphasis in Hypothesis IV resided in the assumption that there would occur differences between the groups at each of the four ages, and that the pattern would portray a later transition stage for the children with learning problems between more primitive and

differentiated modes of attribution. The obtained results did not support this general expectation. While the two groups appeared to differ markedly at the six and eight year ages, with the learning problem children demonstrating more diffuse patterns, this pattern of difference begins to shift considerably at age ten and has disappeared by twelve years of age. Apparently, statistical significance of this three-way interaction was cancelled out in the analysis of variance. However, an examination of the curves for Age-Group-Levels relationships (Figures 4, 5, 6, and 7) reveals a striking similarity between the pattern at a given age for the FLI subjects and the pattern for normals at the preceding age. It is on the basis of this implied pattern of divergence between the normal and FLI groups that final evaluations of the assumptions in Hypothesis IV should be reserved.

Two conclusions do seem reasonable from the obtained results on the AR patterns of the sample groups. First, the normal children appear to relinquish earlier the tendency to attribute responsibility to a person who is physically and otherwise identified with an event, but who serves at no time as an initiator nor agent to the outcome. Second, the ability to discriminate coercion to producing an event, and to accept this as an appropriate mitigation of responsibility is manifested at least two years earlier in the normals than in the group with learning problems.

As to the apparent catching up accomplished by the FLI groups at the ten and twelve year ages, obviously further investigation is required to discern whatever intricacies may be involved. However,

findings in the study of Korstvedt et al. (1964) seem to bear upon this relationship. They did find an improvement in their sample of children with learning problems, when the group was retested following a two-year interval, such that these children's responses to a test of social causality more nearly approximated that of a normal group. At the initial testing, subjects were of eight and nine years of age, so that, with the retest interval, the age ranges are quite close to those at issue in this study. The authors (Korstvedt, et al., 1964) offered the interpretation that this apparent gain for the children with learning problems reflected the progress that they were making in psychotherapy. No control groups were involved in support of this interpretation. In the current PLI sample, all twelve year olds, and all but two ten year olds were involved in psychotherapy, while the eight and six year PLI groups had three and one, respectively, in treatment. Thus, the interpretation of the Korstvedt group may again be applicable, but it would seem desirable to have this hypothesis tested against the developments of a control group.

The third, major focus of this research was a test of the general applicability of Heider's theory of attribution of responsibility by providing a replication of the strong Levels effect that has been observed with adults. The single, previous study employing this theoretical framework (Shaw and Sulzer, 1964) with children resulted in general support for the theory, with the exception of the pattern of AR to Level V (Justified Commission). The results obtained in this study certainly support the predictable effects of Levels on the attribution of responsibility for total groups. Attributed responsibility did

increase progressively with increasing personal involvement and causality, as defined by Heider (1958a), and then tempered under the conditions of a coercive environment. However, the importance of a significant age by Level relationship, in which the predicted, patterned effect of Levels becomes more closely approximated with age, should be emphasized in all applications of the Heiderian model with children. For example, this relationship definitely explicates the finding of Shaw and Sulzer (1964) that their children failed to respond to justifying conditions, and to show any diminution in attributed responsibility at Level V. As the results of this study have clearly demonstrated, the level of sophistication evinced by such a pattern does not stabilize until ten years of age, and the oldest of Shaw and Sulzer's second graders was barely nine years old. Nevertheless, the overall utility of Heider's theory was reliably confirmed.

The significance of outcome conditions within the context of social causality has appeared in previous research as a known, stable quantity. The consistent pattern of greater attributed responsibility (blame than praise) for negative than positive outcomes, and more AR for high than low intensity events was generally repeated in this investigation. In view of the reliability of this pattern in other studies (Sulzer, 1964; Shaw and Sulzer, 1964; and Kronstadt, 1965), an analysis of outcome did not constitute a major focus of this study. And the obtained, mean AR for the different outcome conditions for total subjects met with stated expectations. For the two sample groups, the pattern in relation to outcome intensity was identical, with increasing AR from low to high intensity. With regard to outcome quality

(positive-negative), some distinction between groups occurs. Children with learning problems attributed less to positive outcome events and more to negative outcomes than normals. The reliability of this difference was not tested, and, therefore, no conclusions are drawn. It is felt, however, that there is sufficient implication in this result to warrant a more detailed, specific investigation into the potential, variable effects on AR patterns of normal and non-normal groups under different outcome conditions.

Two final expectations in this research related to the willingness to attribute responsibility and the tendency to utilize extreme points in defining AR on a rating scale. The children with learning problems show a tendency significantly greater than the normal children to attribute either maximum responsibility for a given event or no responsibility at all. This result may be viewed within the context of the overall more diffuse cognitive operations demonstrated in the learning problem group. In relation to the experimental rating scale (Appendix C), the children with learning problems more frequently responded with zero (No responsibility) or five scale scores on the six point scale and less often to the four mid-range points than normals. This response has been noted in previous research with emotionally maladjusted samples (Wright, 1960), and the overall pattern has been interpreted as illustrative of a "cognitive simplicity" (Bieri and Blacker, 1956). This type of conceptualization is consistent with the less differentiated response patterns demonstrated by children with learning problems on a cognitive task such as attributing responsibility. With regard to the willingness to attribute responsibility, the difference

between normals and FLI children did not reach the .05 level of significance. However, the difference did reach a .08 level of significance and this trend cannot be totally disregarded. A review of the data on unwillingness revealed that the pattern was consistent, with the FLI children considerably more unwilling to attribute than normals, at all ages except six years. Normal six year olds demonstrated a slightly greater unwillingness than the six year olds with learning problems (35% versus 33% of "No" responses), while FLI groups at age eight years and older were more unwilling to attribute responsibility (38% FLI versus 31% normal). The basis for this pattern inconsistency is not discernible from the current data and must, therefore, await explication in future investigations.

CHAPTER 7

CONCLUSIONS

The goals of this research have been outlined as follows:

1. An empirical test of the developmental implications of Heider's theory of the attribution of personal responsibility (1958, 1958a);

2. A comparison of the attribution patterns of normals and children with primary learning inhibitions within this theoretical framework;

3. An attempt to obtain information which would yield inferences relevant to the developmental course of perceptions of social causality; and

4. The confirmation with children of the general relationships in the attribution of responsibility that have been established in studies drawing upon adult populations.

The results obtained in this investigation appear to support the following conclusions.

Heider's theory of attribution of responsibility has been shown to have a very broad applicability, within both a developmental schema of the perception of social causality and a method-framework for understanding the relative environmental contribution to attributed responsibility. Children appear to discriminate increasingly among the causal structures represented in the five Levels as they get older. Six year old children continue to demonstrate strains of precausal thinking about responsibility in their relatively indiscriminant response to the different Levels, but a pattern of increasing discrimination does emerge with the result that a function highly similar to that which has been found illustrative of the adult pattern of attribution has been

instituted by ten years of age. And by age twelve years there is no really meaningful divergence from adult patterns. Precausality (Piaget, 1930, 1955) seems to have largely disappeared in the interm of six to eight years, as reflected in the diminution of attributed responsibility to Level I (Association). This trend is then further refined, so that virtually no AR to Level I appears by age twelve years. Within the eight year age range, a pattern occurs which is suggestive of a "transition" in discriminant capacity, relative to the five causal structures. The "paracausal" stage then culminates with the emergence of an objectively determined reasoning with regard to personal causality that corresponds to Piaget's notion of subjective responsibility, at which point personal motivations in producing events become of central importance in attributing responsibility. One general conclusion has undoubtedly emerged; the cognitive task of attribution of responsibility is determined by the complex of causal structures existing in a given environment and the capacity of an observer to discriminantly perceive such causal structures.

As the foregoing conclusion has been demonstrated in relation to the variable of age (maturational level), so does it have applicability regarding the nature of emotional adjustment. Normal children appear to differ from children with learning problems of emotional origin by attributing responsibility in a pattern such as to suggest less differentiation in this area of cognitive functioning. However, this finding is to some extent mitigated by the influence of age, for, in this research, the learning problem children essentially caught up with the normals by the age of twelve years. This unexpected pattern

has been discussed in terms of the possible, positive influence of psychotherapy, in which many of these children were involved. An alternative interpretation relates to the potential of different rates of maturation in certain brain-cognitive functions for the two populations. However, the fact that these were all children with average intellectual ability, and that spontaneous remissions of primary learning inhibitions are quite uncommon (Abner, et al., 1966; Anderson, 1965), lends impetus to a search for additional explanations for the obtained results. Including a group of controls, not involved in psycho-therapy, has been suggested as a means of testing the hypothesis of a positive treatment effect.

Certain reliable differences between normals and PLI children may, however, be concluded. Until the age of ten years, children with learning problems appear to show developmentally more primitive patterns of attributing responsibility. This pattern difference may reflect abnormalities in interpersonal perceptions by the PLI children, differences in cognitive maturity, and/or group-specific, idiosyncratic response tendencies in an experimental situation of this nature (unwillingness to respond and responsiveness to extremes). The capacity to identify and take into consideration such mitigating influences as provocation, facilitation, and coercion by an external source has not apparently developed in children with learning disorders until age twelve years, whereas normal children have stabilized this discrimination some two years earlier. A final, more suggestive result in this study relates to qualities of the action. Although untested, it

appeared that the two groups may differ in their response to positive and negative events, but the need for a more precise study of these effects precludes any definitive statement here.

The efforts and results of this research have demonstrated an overall utility in Heider's theory of personal responsibility. It is certainly not exhausted as a model within which further, more precise investigations on the development of causal reasoning may be conducted. Among the more immediate foci for future research efforts are the potential effects of variations <u>within</u> Levels, such as the closeness of association between the central character and his effect, factors relating to the status, sex, and personal characteristics of the acter, variations in situation contents, the personal relevance of events for the attributer, and, likely, many others. The methodology and procedure employed in this research—modeled after the extensive instrumental developments provided in earlier studies—offers a refined, validated framework for use in future research.

APPENDICES

APPENDIX A

CRITERIA DATA SHEETS

POPULATION: Normal_____ LEARNING PROBLEM_____

DATE OF BIRTH: _____ AGE:_____.

FAMILY BACKGROUND:

CLASS (1) Fa. occ._____ (2) Fa. ed._____
Two-factor scale placement_____

(2) Family intactness_____

INTELLIGENCE INFORMATION:

(1) Test_____ (2) I.Q._____

ACHIEVEMENT INFORMATION:

(1) Test_____

(2) Results (grade equiv.) Comments:_____

Reading:_____
Spelling:_____
Arith.:_____

(3) Current School Grade Placement_____

HEALTH INFORMATION:

(1) Illnesses_____

(2) Neurol. Data_____

(3) Emotional Status_____

(4) Vision_____ Hearing_____ Speech_____

COMMENTS:_____

AFTER [illegible]

INSTRUCTIONS

"I am going to read some short stories about a boy named Perry. I will read each story twice to be sure that you understand. After I reach each story the second time, I will ask you if you think Perry is responsible for what happened in that story. If a person is responsible for something, that means that we might blame him for it or thank him for it.

"I will ask you whether you think Perry is responsible for what happened in each of the stories. If you think Perry is responsible circle the "YES" on your answer sheet. If you think Perry is NOT responsible for what happened, circle the "NO" on your answer sheet.

"If you circle "YES" then check one of the boxes to show how much responsible you think Perry is for what happened. If you think he is VERY responsible, put an "X" in the biggest box. If you think he is less responsible, then put an "X" in one of the SMALLER boxes. The less responsible you believe Perry is, the smaller the box you check. (Demonstrate) See . . . you put the "X" here if he is very responsible and here or here if less responsible . . . and in this small box if you think he is only a little responsible.

"REMEMBER--put an "X" in one of these boxes to show how much you think Perry is responsible only if you circled "YES." If you circled "NO" that is all you do for that one.

"Are there any questions? If you don't understand something, tell me now because I won't be able to answer questions once we get started."

APPENDIX B—Continued

THE PERRY STORIES

1. One day Perry was fishing by a bridge when he saw a very little boy fall into the deep water. Perry could not swim, but he jumped in and fought his way out to the boy and pulled him out of the water. Is Perry responsible for saving the little boy's life?

2. Perry and several of his classmates were playing by the lake. While Perry was climbing a tree, two of the other boys found a golf club in the bushes and broke it into pieces. Is Perry responsible for the golf club being broken?

3. Perry carried a bucket of water to the yard so that he could wash the family car. Then he went back to get the soap. A thirsty bird flew down and got a drink of water from the bucket. Is Perry responsible for the bird getting a drink of water?

4. A gang of boys grabbed Perry and twisted his arm so much that it hurt. They ordered Perry to throw a rock through a store window. Perry broke the window. Is Perry responsible for the broken window?

5. Perry woke up in the middle of the night and saw that the house next door was on fire. He was frightened and woke up his father to ask him if he could sleep in his parents' room. His father ran to the house and saved two old people who were trapped in the burning house. Is Perry responsible for saving the two people?

6. Perry called a boy and told him to come over to his house to see his new birthday presents. On the way to Perry's house the boy was struck by a car and was badly hurt. Is Perry responsible for the boy being hurt?

7. One day Perry went to watch his school baseball team. Perry's school team won the championship game. Is Perry responsible for his team winning?

8. Perry was at a party. When the cookies were passed, Perry took five of them. There were not enough cookies to go around and one of the boys got none. Is Perry responsible for the boy not getting any cookies?

9. A little boy was lost in a big cave. Everyone was afraid to go into the cave because they might get lost too. Perry's club leader decided that any member who did not join the search for the boy would be kicked out of the club. Perry went into the cave, found the boy, and brought him to safety. Is Perry responsible for saving the boy?

APPENDIX B—Continued

10. Perry and another boy were playing with sticks. Perry decided to hurt the other boy and he hit him in the face with the stick. The boy's nose was badly broken. Is Perry responsible for the boy's nose being broken?

11. Perry had tickets to the movies but could not go. He left the tickets on the hall table. His sister found the tickets and went to the movies. Is Perry responsible for his sister getting free tickets to the movies?

12. Perry was coming through the door into a restaurant. Just as he opened the door, a waitress was passing with a tray of dishes. The door struck her arm, causing her to drop the tray and break the dishes. Is Perry responsible for the dishes being broken?

13. Perry had been playing with some classmates in a tree. After he had climbed down, some of the boys tried to hurt another boy. They pushed him out of the tree and the boy's neck was broken. Is Perry responsible for the boy getting a broken neck?

14. Perry was watching a boy building a block tower. Perry decided to throw his ball at the tower, and the tower was knocked down. Is Perry responsible for the tower being knocked down?

15. Perry didn't want to cut the grass, but his mother said she would spank him unless he did it. Perry cut the grass and the lawn looked very nice. Is Perry responsible for the lawn looking nice?

17. Perry was playing with some bricks on the roof of his father's garage. When he was tired of playing with the bricks, Perry began tossing them down onto the sidewalk. A woman coming down the sidewalk was struck on the head and badly cut by one of the falling bricks. Is Perry responsible for the woman getting badly cut?

18. While he was on his way to the park, Perry bought a newspaper. When he got to the park, Perry decided to give the paper to an old man sitting on a park bench. Is Perry responsible for the old man getting the newspaper?

19. Perry was making telephone calls to several of his friends. When the phone rang in one of the homes he called, it woke up a man who was sleeping near a broken gas stove. If he had not awakened, the leaking gas would have killed him. Is Perry responsible for the man having up in time to escape death?

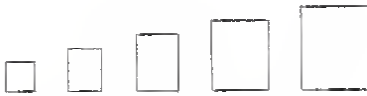
APPENDIX B—Continued

20. Perry was taking his family's savings to the bank, when a man grabbed him and demanded the money. Perry decided to hand over all the money, and the man took it and ran off. Is Perry responsible for losing all of his family's money?

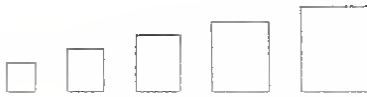
APPENDIX C

SAMPLE SUBJECT RESPONSE SHEET

YES

1. NO 

YES

2. NO 

APPENDIX D[1]

RAW DATA FOR SIX YEAR OLD SUBJECTS

	Normal	FLI
1	055044544405555000555	022540502500550055550
2	400225555550000000000	020020500200335055555
3	000050505502104035340	034550500500503003555
4	550555554540500445500	024325503045435555555
5	015551555501350005555	045550405500550044453
6	015550555550050004005	005550545515541055555
7	000050555501010105150	400455055400000000005
8	012000000004440005510	303442536135344005020
9	050055555555455005555	500450500555440550545
10	500010100350420410555	200000455503115225555

RAW DATA FOR EIGHT YEAR OLD SUBJECTS

	Normal	FLI
1	022540502500550055550	100550555500555055555
2	020020500200335055555	500000012554245555550
3	034550500500533003555	305054535354214530505
4	024325503045435555555	015100555110010055555
5	045550405500550044453	340010501500344545555
6	005450504000550555555	010050502020225110520
7	055350205500521015455	000550505510555055555
8	003350505500124015555	030040405510534545444
9	005550545300555555545	100050000000142023344
10	202440535501515015535	000541402520220224544

[1]Subject responses to twenty stimulus items (see Appendix B). The columns represent each story in the order indicated in Appendix B.

APPENDIX D—Continued

RAW DATA FOR TEN YEAR OLD SUBJECTS

	Normal	PLI
1	0015100250034405045 4	505550500500555055
2	0245404133005530155 0	0045505055005550[illegible]
3	0055405055015550455 3	2500414050005401 0
4	0134504045004220455 3	0000000055004050[illegible]
[illegible]	0305503000025550354 4	0001110005003350[illegible]
[illegible]	0445405034005550245 5	0544400000054530[illegible]
[illegible]	1025404334005500055 0	1015005555055545055 5
[illegible]	0035305453015510445 3	0054404044005530455 4
9	0354505555025500055 0	0005005055002530055 0
10	0034231553005525054 4	0100400000050050435 5

RAW DATA FOR TWELVE YEAR OLD SUBJECTS

	Normal	PLI
1	0025203053004520145 2	0035105321005530255 0
2	0124205255014500355 2	0344202025005530054 2
3	0054104353034420244 0	0034505352305450055 0
4	0204503035005540254 2	0032500011001530255 5
5	0204403234005520355 2	0045002051005500155 0
6	0005502143004540245 3	0505404000015500135 3
7	0015404034004520355 4	0055005154004510055 0
8	0005502155002510454 3	0005501554104551445 5
9	0135301154005530445 4	0334224323224502444 3
10	0145404154002511155 3	0535505055005550055 0

BIOGRAPHICAL SKETCH

Alex Kronstadt was born July 14, 1941, at Savannah, Georgia. He was graduated from Stranahan High School in Fort Lauderdale, Florida, in June, 1959. In September, 1959, he enrolled at the University of Florida, where he received the Bachelor of Arts degree in 1963 and the Master of Arts degree in 1965. From 1965 through 1967, he has been a candidate for the Ph. D. degree in Psychology at the University of Florida. During that period he has held appointments as a Graduate Fellow, a Fellow of the National Institute of Mental Health, and as an intern in Clinical Psychology at the Judge Baker Guidance Center, Boston, Massachusetts.

Alex Kronstadt is married to the former Dinna Jean Chaco of Fort Lauderdale, Florida, and is the father of a son, Kerry Alan. He is a member of the American Psychological Association, Psi Chi, Phi Kappa Phi, and Phi Eta Sigma. Upon graduation, he will move to Boston, Massachusetts, where he has received appointment as staff psychologist at the Judge Baker Guidance Center and as Instructor at Wheelock College.

This dissertation was prepared under the direction of the chairman of the candidate's supervisory committee and has been approved by all members of that committee. It was submitted to the Dean of the College of Arts and Sciences and to the Graduate Council, and was approved as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

December, 1967

E. Griffith Jones
Dean, College of Arts and Sciences

Dean, Graduate School

Supervisory Committee:

Chairman